



AXELENT X-GUARD®

AUS/NZ standards



MACHINE SAFETY STANDARDS AND RISK ASSESSMENT FOR AUS/NZ

What is the reason behind the continuous machine safety improvements within the sector?

The first and most important is the moral reason. All employees are entitled to a safe and secure work environment. The second reason is financial as workplace accidents cost enormous amounts in sick leave, damages and production losses.

Please see the following important clause's.

6.4.4 Removal only by tool

Demountable parts of guards shall only be removable with the use of a tool not normally available to an operator (see Clauses 4.8 and 4.9).

6.4.5 Positive location of removable guards

Where technically possible, removable guards shall be unable to remain in place without their fixings. This does not preclude the use of locating or supporting features that assist during assembly or disassembly.

6.4.6 Positive closing of movable guards

The closed position of movable guards shall be determined positively. The guard shall be held in position against a stop by means of gravity, a spring, catch, guard locking device or other means.

6.2.4 Viewing

To minimize the need to remove them, guards shall be designed and constructed to offer adequate viewing of the process.

6.2.5 Size and weight

Removable sections of guards shall be designed to be of a suitable size and weight to permit ease of handling. Guards which cannot readily be moved or transported by hand shall be provided or be capable of being provided with suitable attachment devices for transport by means of a lifting gear.

4.9 Use of a tool

Use of a tool by an authorized person under known and predetermined circumstances as part of a safe system of work.

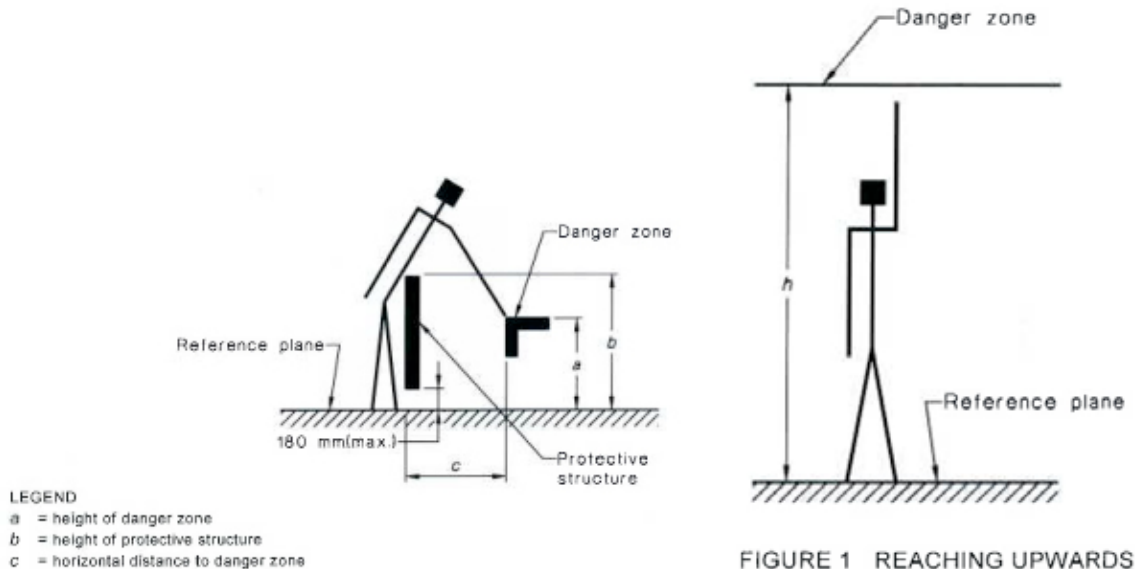
TABLE 4, REACHING THROUGH OPENINGS FOR >14 YEAR OLD

Part of body	Illustration	Opening	millimetres		
			Safety distance (sr)		
			Slot	Square	Round
Finger tip		$e \leq 4$	≥ 2	≥ 2	≥ 2
		$4 < e \leq 6$	≥ 10	≥ 5	≥ 5
Finger up to knuckle joint or hand		$6 < e \leq 8$	≥ 20	≥ 15	≥ 5
		$8 < e \leq 10$	≥ 80	≥ 25	≥ 20
		$10 < e \leq 12$	≥ 100	≥ 80	≥ 80
		$12 < e \leq 20$	≥ 120	≥ 120	≥ 120
		$20 < e \leq 30$	≥ 850 (see note)	≥ 120	≥ 120
Arm up to junction with shoulder		$30 < e \leq 40$	≥ 850	≥ 200	≥ 120
		$40 < e \leq 120$	≥ 850	≥ 850	≥ 850



» Cont. on next page

VALUES FOR SAFETY DISTANCES



3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

4024 Safety of machinery

4024.1101 Part 1101:Terminology - Terms and definitions

4024.1201 Part 1201:General principles - Basic terminology and methodology

4024.1202 Part 1202:General principles - Technical principles

4024.1301 Part 1301:Risk assessment - Principles for risk assessment

4024.1302 Part 1302:Risk assessment - Reduction of risks to health and safety from hazardous substances emitted by machinery - Principles and specification for machinery manufacturers

4024.1602 Part 1602:Design of controls, interlocks and guarding - Interlocking devices associated with guards - Principles for design and selection

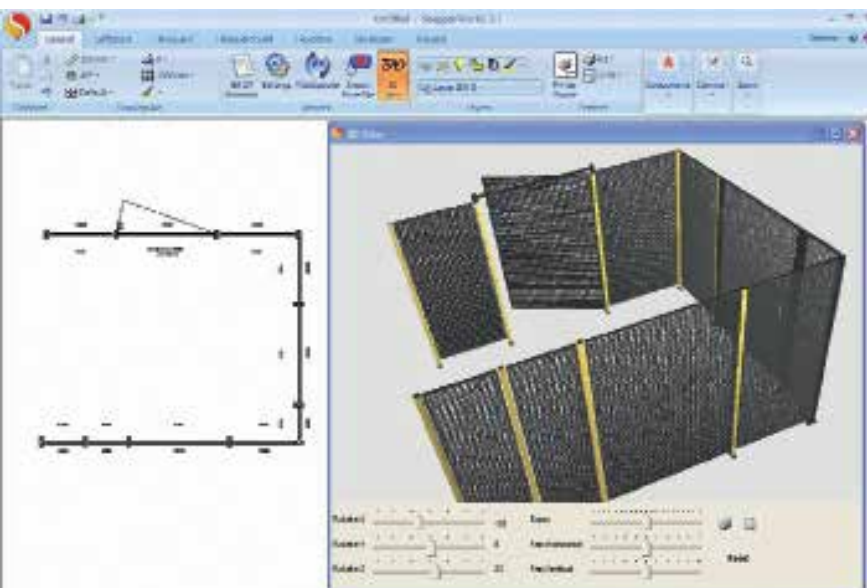
4024.1801 Part 1801:Safety distances and safety gaps - Safety distances to prevent danger zones being reached by upper limits

4024.1802 Part 1802:Safety distances and safety gaps - Safety distances to prevent danger ones being reached by the lower limits

4024.1803 Part 1803:Safety distances and safety gaps - Minimum gaps to avoid crushing of parts of the human body

60204 Safety of machinery - Electrical equipment of machines

60204.1 Part 1: General requirements (IEC 60204-1, Ed.5 (FDIS), MOD)



1. Snapperworks is a software tailored to Axelent's modules and contains all the mesh panels and machine safety components.
2. Snapperworks will reduce your design time for a safety cell by up to 90% by using the software to design your cell.
3. The Snapperworks program enables you to import DWG and DXF files so you can draw your cell straight onto the drawing.
4. From specific lengths you can let the program configure the most economical panel layout and provides a complete drawing and bill of materials.
5. Machine Directives under EN953 5.4.3, December 29th 2009, that fixed guards must be fixed by systems that can be opened or removed only with tools.
EN953 5.4.4, Their fixing systems must remain attached to the guards or the machinery when the guards have been removed and where possible guards must be incapable of remaining in place without their fixings.
AS4024-1601-6.4.4 Removal only by Tool. Demountable guards shall only be removable with the use of a tool not normally available to an operator. AS4024-1601-6.4.5 Positive Location of removable guards. Where technically possible, removable guards shall be unable to remain in position without their fixings.
6. Machine Viewing EN 953 5.10 AS4024-1601-6.10 Where it is necessary to view machine operation through the guard, materials with suitable properties shall be selected, for example if perforated material or wire mesh is used, this should be of adequate open area and suitable colour to permit viewing. Viewing will be enhanced if the perforated material is darker than the area to be observed.
7. 6.2.5 Size and weight
Removable sections of guards shall be designed to be of a suitable size and weight to permit ease of handling.

Guards which cannot readily be moved or transported by hand shall be provided or be capable of being provided with suitable attachment devices for transport by means of lifting gear.

8. NOTE: If the length of the slot opening is less than or equal to 65 mm, the thumb will act as a stop and the safety distance can be reduced to 200 mm.

9. Axelent Xguards has an aperture of 29mm x 49mm which gives a safety distance of 200mm. See AS 4024-1801-2006 table 4

10. Axelent mesh guards have 3 heights and 13 different width sizings.

11. Axelent Xguard has 3 poles sizing 50mm x 50mm, 50mm x 100mm and 100mm x 100mm.

12. Axelent Xguard has over 40 different types of doors to choose from.

13. Axelent Xguards provides over 30 different types of accessories to provide ease of installation of gate interlocks to Sheetmetal infills.

14. Axelent Xguards provides 5 types of locking.

15. Axelent offers a simple flexible cable tray solution that is adapted to Xguard.

THE AXELENT GROUP

The Axelent Group is made up of four companies: Axelent, Axelent Wire Tray, Axelent Engineering and Axelent Software. These companies have the joint vision of making the industry competitive and profitable through automation, safety, rational procedures, functions and expertise.

The companies are at the growth stage, developing their businesses in both the Swedish and international markets.



AXELENT AB

Axelent AB is a leading and rapidly growing company that produces and markets mesh panel systems for machine guarding and partitioning within industry, warehousing and property protection. The head office is in Hillerstorp, Sweden, along with a product development, production, storage and packaging. Axelent has sales offices in 50 countries and subsidiaries in Germany, Belgium, the Netherlands, France, Spain, Italy, Australia, the UK and the USA.

www.axelent.com



AXELENT SAFETY

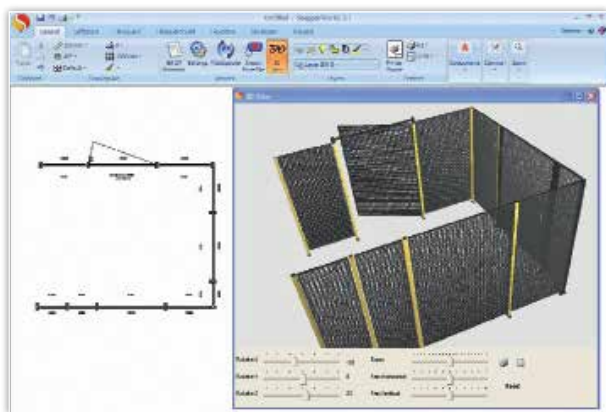
Axelent AB also embraces the business area Axelent Safety, which offers complete machine safety solutions. Operations are divided into four sub areas. Risk Analysis, Design, Installation and Final Approval/CE Marking. Axelent Safety also provides training, consultancy and legal consultation within machine safety.

www.axelent.com

AXELENT ENGINEERING AB

Axelent Engineering AB provides services and products within automation predominantly to producing industry in Scandinavia. The core business is custom hardware and robotic solutions with an emphasis on profitable flow for the entire lifecycle. By partnering with Dassault Systèmes, a world leader in 3D and PLM (Product Lifecycle Management) solutions we can also offer PLM services and products such as CATIA, 3D VIA, DELMIA and ENOVIA. This combination makes Axelent Engineering an even more complete partner for the industry in terms of innovative and profitable flows.

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AXELENT SOFTWARE

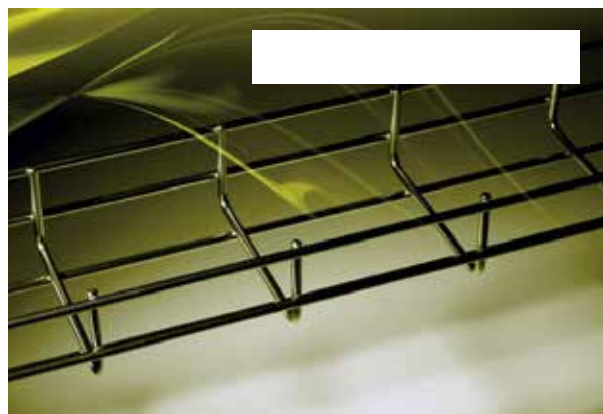
Axelent Software develops and markets user licences for their in-house software applications SnapperWorks and SafetyWorks. The programs are based on distributed platforms and standards that ensure a long length of life, continuous development and easy connectivity to other systems. Axelent Software's products are based on simplicity and ease of use and is in its original version developed for Axelent's products, but through various customizations applicable in most industries with standardized products.

www.snapperworks.com

AXELENT WIRE TRAY AB

Axelent Wire Tray AB develops, manufactures and markets cable tray systems, brackets, fittings and accessories under the X-Tray® brand in close collaboration with the customer for an optimum qualitative, cost-effective and functional solution. The majority of customers are active in the export market within the Food industry, Off Shore, Machinery, OEM, Infrastructure and Tele/Data sectors.

www.axelentwt.com





Axelent AB is a leading and rapidly growing company that produces and sells mesh panel systems for machine guarding and partitioning within industry, warehousing and property protection. Axelent AB also embraces business area Axelent Safety, which offers complete machine safety solutions. The Axelent Group also includes Axelent Wire Tray AB (cable trays), Axelent Software (software) and Axelent Engineering AB (automation solutions). Axelent's head office is in Hillerstorp, Sweden, along with product development, production, storage and packaging. Axelent has sales offices in 50 countries and the products are sold worldwide.



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